

REMARKS/ARGUMENTS

Re-examination and favorable reconsideration in light of the above amendments and the following comments are respectfully requested.

Claims 2 - 16 and 18 - 22 are pending in the application. Currently, no claim has been allowed.

By the present amendment, claims 2, 6, 10, and 22 have been amended, claims 11 and 19 have been cancelled, and new claims 23 - 32 have been added.

In the office action mailed September 29, 2005, claims 2, 5, and 19 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,518,796 to Tsotsis in view of U.S. Patent No. 3,964,527 to Zwart and further in view of U.S. Patent Publication No. 2004/0188025 to Anderson et al.; claims 3, 4, and 20 were rejected under 35 U.S.C. 103(a) as being unpatentable over Tsotsis in view of Zwart in view of Anderson and further in view of U.S. Patent No. 5,968,641 to Lewis; claims 6, 14, 15, and 18 were rejected under 35 U.S.C. 103(a) as being unpatentable over Tsotsis, Zwart, and Anderson; claims 7 - 13 and 22 were rejected under 35 U.S.C. 103(a) as being unpatentable over Tsotsis and further in view of ordinary skill in the art; claim 16 was rejected under 35 U.S.C. 103(a) as being unpatentable over Tsotsis in view of Zwart, Anderson and Lewis; and claim 21 was rejected under 35 U.S.C. 103(a) as being unpatentable over Tsotsis in view of Zwart and further in view of Anderson et al.

The foregoing rejections are traversed by the instant response.

The present invention broadly relates to a self extinguishing composite primary structure comprising a core formed from an open cell and a thermal insulating material,

which core comprises a plurality of honeycomb cells filled with a fire resisting material such as a fiberglass material and has a first surface and a second surface. At least one ply of a structural graphite prepeg material bonded to each of the first and second surfaces. Each ply is bonded to each of the first and second surfaces by an epoxy structural film adhesive.

The present invention also broadly relates to a helicopter comprising at least one component formed from a self extinguishing composite material. The self extinguishing composite material comprises a core formed from a fire resisting material, which core comprises a plurality of honeycomb cells filled with the fire resisting material such as fiberglass material. The core has a first surface and a second surface, and at least one ply of a structural graphite prepeg material bonded to each of the first surface and the second surface.

The rejection of claim 2 on obviousness grounds is fatally defective. First and foremost, none of the cited and applied references are directed to a helicopter. As set forth in *Merriam-Webster's OnLine Dictionary*, a helicopter is "an aircraft whose lift is derived from the aerodynamic forces acting on one or more powered rotors turning about substantially vertical axes." The Anderson et al. reference is relied upon by the Examiner as showing a helicopter; however, the reference makes no disclosure. The aircraft depicted in FIG. 1A of the reference is not a helicopter since it does not derive lift from aerodynamic forces acting on one or more powered rotors turning about substantially vertical axes.

The Tsotsis patent relied upon by the Examiner is directed to the formation of a non primary structural element of an aircraft, namely the floor. The floor is formed by a honeycomb sandwich panel having a top skin (1) and a bottom skin (5). The

two skins are preferably made from a fiber glass epoxy, but could also be made from graphite/epoxy, graphite/phenolic, and the like which are adhesively bonded to a honeycomb core (3) preferably made from aluminum or a paper composed of thermoplastic fiber such as NOMEX. The top skin is bonded to the honeycomb core by use of a foaming, fiber filled adhesive (2). The bottom is bonded to the core using a non-foaming epoxy (4). The Tsotsis patent does not mention forming a helicopter having a self extinguishing composite primary structure. In fact, the Tsotsis patent has no interest in forming such a structure. Clearly, Tsotsis does not disclose and has no interest in bonding each ply to the surfaces of the honeycomb core with an epoxy structural film adhesive, particularly one which comprises a 350 degree Fahrenheit curing epoxy structural film adhesive.

The Zwart patent does not cure the aforementioned deficiencies of the Tsotsis patent. It merely relates to filling the cells of a core material with a fibrous material. The honeycomb core filled with the fibrous material is to be used in the fabrication of sound proofing panels for building partitions, ceilings, and aircraft cabin interiors. Thus, Zwart expresses no interest in forming a helicopter with a self extinguishing primary structure. Certainly, there is no disclosure in Zwart of forming a composite structure using an epoxy structural film adhesive.

As noted before, the Anderson patent publication is directed to the fabrication of an aircraft, not a helicopter. The publication is directed to the fabrication of a one-piece fuselage using fibers wound about a mandrel and coated with epoxy resin. There is no disclosure in the Anderson patent publication of a composite structure such as that claimed by Applicants.

It is submitted that while one of ordinary skill in the art may be motivated by Zwart to place fibrous material into the cells of a honeycomb core to improve sound insulation, there is absolutely no motivation to combine the references to arrive at the claimed helicopter with the claimed self extinguishing composite primary structure. As for the inclusion of Anderson, one of ordinary skill in the art would not be motivated to combine it with Tsotsis and Zwart since it teaches away from the use of composite panels having a honeycomb core.

With regard to the Examiner's contention that the epoxy used by Tsotsis is inherently a 350 degree Fahrenheit curing epoxy structural film adhesive, this contention is without merit. In order to establish that a claimed feature is inherently present in a reference, the Examiner must present extrinsic evidence that must make clear that the missing descriptive matter is necessarily present in the thing described in the reference and that it would be so recognized by persons of ordinary skill in the art. See *Continental Can Co. v. Monsanto Co.*, 948 F.2d 1264, 1268, 20 USPQ2d 1746, 1749 (Fed. Cir. 1991); also see *In re Robertson*, 49 USPQ2d 1949, 1950 - 51 (Fed. Cir. 1999). Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient. See *Continental Can Co. v. Monsanto Co.*, 948 F.2d at 1269, 20 USPQ2d at 1749; *In re Robertson*, 49 USPQ 2d at 1951. It is submitted that all the Examiner has done is set forth a conclusory statement which is unsupported by an extrinsic evidence. The fact of the matter is that there are many epoxy resin adhesives which do not meet the 350 degree Fahrenheit curing limitation of claim 2. Attached hereto are examples of epoxy resin adhesives which do not require a 350 degree cure.

For these reasons, claim 2 is allowable over the cited and applied references. Claim 15 is allowable for the same reasons as claim 2.

With regard to the rejection of claims 3, 4, and 20, Applicants hereby incorporate the above comments about Tsotsis, Zwart and Anderson. The Lewis patent relied upon by the Examiner does not cure the aforementioned deficiencies of the other references. The Lewis patent relates to a composite laminate structure which includes a syntactic core layer including an epoxy system catalyzed by a Lewis acid and two face skin layers, each of which has multiple graphite fibers laid up in a polycyanate matrix resin catalyzed by cobalt. If anything the Lewis patent teaches away from the claimed invention. In particular, it teaches that one does not need a honeycomb core. Even if one were somehow motivated to combine the Lewis patent with the three other references, there still is no teaching or suggestion of a helicopter having a self extinguish composite primary structure having the structure set forth in claim 3. Claim 4 is allowable for the same reasons as claim 3. Claim 20 is allowable because none of the cited and applied references teach or suggest the claimed adhesive.

With regard to the rejection of claims 6, 14, 15, and 18, Applicants hereby incorporate the above comments about Tsotsis, Zwart, and Anderson and the patentability of claim 14. Claim 6 is allowable because none of the cited and applied references teach or suggest a helicopter having at least one component formed from a self extinguishing composite material having the structure set forth in the claim. Still further, there is no disclosure in any of the references of forming the component so that at least one ply forms an exterior surface of the helicopter. Again, Tsotsis relates to a floor construction, not

the construction of a primary structure of a helicopter. Zwart is also related to interior panels, not the construction of a primary structure of a helicopter. Anderson contains no teaching as to a helicopter. As to the claimed composite structure, Anderson teaches an entirely different composite structure. For these reasons, claim 6 is allowable. Claims 14 and 18 are allowable for the same reasons as claim 6 as well as on their own accord. There is no disclosure in any of the cited and applied references of forming any ply from a graphite cloth impregnated with an epoxy resin.

With regard to the rejection of claims 7 - 13 and 22, Applicants hereby incorporate the above comments about Tsotsis, Zwart, and Anderson. As for the Examiner's statement that Tsotsis does not disclose all the various uses of his composite material, this is not true. Tsotsis clearly states that his composite is to be used for a floor panel. With regard to the Examiner's comments about the duPont website, the material submitted by the Examiner is non-enabling as to the claimed invention. It does not teach one how the Nomex would be used to form such structures as flaps, wing-to-body fairing, nacelles, randomes, doors, floors, ceilings, stow bins, and walls. There is not even any discussion that the Nomex would be used in a honeycomb cell form. It is submitted that none of the cited and applied references teaches or suggests improving the safety of a helicopter by forming an outer skin panel in a cockpit section of the helicopter, an upper cabin door, a lower cabin door, a plurality of steps for a lower cabin door, at least one emergency egress hatch, and/or an upper door in the transition section from the claimed self extinguishing composite primary structure. For these reasons, claims 7 - 13 and 22 are allowable.

With regard to the rejection of claim 16, Applicants hereby incorporate their previous comments about the combination of Tsotsis, Zwart, Anderson and Lewis. Claim 16 is allowable for the same reasons as claim 6 as well as on its own accord.

Claim 21 is allowable because none of the cited and applied references teach or suggest a helicopter having at least one component for allowing at least one of human access to and egress from at least one of a cabin and a cockpit section of the helicopters from the self extinguishing composite material set forth in the claim.

New claim 23 relates to a method for forming a component for use on a helicopter, which method comprises the steps of laying at least one skin ply into a mold, placing a first layer of film adhesive over the at least one ply; positioning a core within the mold, placing a second layer of film adhesive over the core, laying at least one additional skin ply over the second layer of film adhesive, and curing the at least one skin ply, the first layer of film adhesive, the core, the second layer of film adhesive, and the at least one additional ply. None of the cited and applied references teach or suggest such a method. Claims 24 - 27 are allowable for the same reasons as claim 23 as well as on their own accord.

New claim 28 relates to a method for forming a helicopter comprising the steps of forming each of a portion of a cockpit section of the helicopter, an upper cabin door, a lower cabin door, at least one emergency egress hatch, and an upper door in a transition section from a fire resisting composite primary structure, and forming each fire resisting composite primary structure by laying at least one skin ply into a mold; placing a first layer of film adhesive over the at least one ply; positioning a core within the mold, placing a second layer of

film adhesive over the core; laying at least one additional skin ply over the second layer of film adhesive; and curing the at least one skin ply, the first layer of film adhesive, the core, the second layer of film adhesive, and the at least one additional ply. None of the cited and applied references teach or suggest such a method.

New claim 29 relates to a helicopter comprising means for increasing crew and passenger safety, which crew and passenger safety increasing means comprising means for resisting fire forming each of a portion of a cockpit section of the helicopter, an upper cabin door, a lower cabin door, at least one emergency egress hatch, and an upper door in a transition section, and each fire resisting means forming the portion of the cockpit section of the helicopter, the upper cabin door, the lower cabin door, the at least one emergency egress hatch, and the upper door in the transition section comprising an outer skin panel having core means for self extinguishing in event of a fire, means for forming an exterior structural surface and an interior structural surface, and means for bonding the structural surfaces forming means to the core means. None of the cited and applied references teach or suggest such a helicopter. Claims 30 - 32 are allowable for the same reasons as claim 29 as well as on their own accord.

For the foregoing reasons, the instant application is believed to be in condition for allowance. Such allowance is respectfully requested.

Should the Examiner believe an additional amendment is needed to place the case in condition for allowance, he is hereby invited to contact Applicants' attorney at the telephone number listed below.

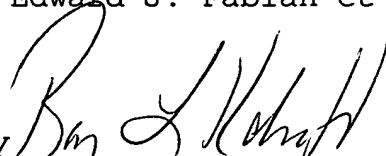
A request for a one month extension of time is enclosed herewith.

A check in the amount of \$120.00 is enclosed herewith to cover the cost of the extension of time fee, the extra independent claim fee, and the additional claim fee. Should the Director determine that an additional fee is due, he is hereby authorized to charge said fee to Deposit Account No. 02-0184.

Respectfully submitted,

Edward J. Fabian et al.

By



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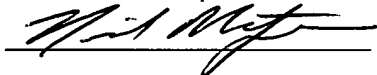
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Date: January 30, 2006

I, Nicole Motzer, hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: "Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313" on January 30, 2006.






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helicopter

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helicopter[1,noun]
 helicopter[2,verb]

Main Entry: ¹**he·li·cop·ter** Ⓢ

Pronunciation: 'he-l&- "kăp-t&r, 'hE-

Function: *noun*

Etymology: French *hélicoptère*, from Greek *heliko-* + *pteron* wing -- more at [FEATHER](#)

: an aircraft whose lift is derived from the aerodynamic forces acting on one or more powered rotors turning about substantially vertical axes

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Film Adhesive / Epoxy

Product Data Sheet

DESCRIPTION	PHYSICAL PROPERTIES (cont...)
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ADVANTAGES	AVAILABILITY
<p>The high peel strength and high toughness of L-315 allows the designer to use this material in areas of construction requiring long term structural strength such as exterior grade architectural wall panel systems.</p> <p>L-315 is very easy to process through a wide variety of cure temperatures and pressures. Curing may occur in low pressure press cycles designed for high throughput of panel assemblies. Typical cure cycles of 10-12 minutes at 300 Deg F with firm contact pressure are typical in production use.</p> <p>With dry subcomponents, "IN-HOT, OUT-HOT" press cures may be developed by the user.</p>	<p>48" Wide Rolls x 75 Yards Long</p>
PHYSICAL PROPERTIES	SHELF LIFE
<p>Standard weight: 0.060 lbs/sq. ft.</p> <p>Optional Weights</p> <p>0.030 lbs/sq. ft</p> <p>0.045 lbs/sq. ft</p> <p>0.075 lbs/sq. ft</p> <p>0.090 lbs/sq. ft</p> <p>(Other Weights are Available)</p> <p><i>Various supporting carriers, both Woven and Nonwoven are available</i></p>	<p>3 months at 70 Deg F</p> <p>7 Days at warm shop temperatures (90 Deg F)</p>
	CURE CYCLES
	<p>12 minutes at 300 Deg F</p> <p>OR</p> <p>45 minutes at 270 Deg F</p>
	GEL TIME
	<p>2-4 minutes at 295 Deg F.</p>
	APPLICABLE DOCUMENTS
	<p>MMM-A-132</p> <p>MIL-A-25463</p>
	ADHESIVE PRIMERS
	<p>L-315 is compatible with either L-309 Corrosion inhibiting adhesive primer</p> <p>OR</p> <p>L-312 Adhesive Primer</p>
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